APPENDIX A.

Patented Nov. 14, 1922. 1,435,199

UNITED STATES PATENT OFFICE.

LEWIS VAN DEVENTER BLAIR, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE MANTLE LAMP CO. OF AMERICA, OF CHICAGO, ILLINOIS.

HEAT-INSULATED RECEPTACLE.

Application filed October 29, 1919. Serial No. 334,212.

To all whom it may concern:

Be it known that I, LEWIS VAN DEVENTER BLAIR, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Heat-Insulated Receptacles, of which the following is a specification.

The invention relates to receptacles of the heat-insulated non-vacuum type, objects thereof being to economically produce relatively large receptacles, to render such receptacles sanitary and easy to clean, to improve the insulation, to provide means for easily and permanently assembling and uniting the component parts, and to minimize the transmission of shocks to the inner vessel or container which, being preferably composed of glass or other frangible substance, is likely to be broken if means for its protection from extraneous shocks are not utilized.

The invention will be best understood by referring to the drawing constituting a part of this specification in which Figure 1 is a view in elevation with portions broken away to show the lower parts of the outer jacket and the container with which a receptacle made in accordance with the invention is to be provided; and Figure 2 is a sec-

tional view of a portion of such a receptacle showing the construction of the upper parts thereof on a larger scale.

The outer jacket, 1, is made of at least two parts, a lower cylindrical section, 2, having a bottom, 3, and an upper cylindrical section 4, which terminates in a threaded neck, 5, having an inturned flange, 6. These two sections, 2 and 4, which are preferably of metal or other non-frangible substance, are united by a substantially air-tight and water-tight spun joint, 7, consisting of an outwardly-turned bead, 8, on one section and an inwardly turned lip, 9, on the other section, said lip being spun over said bead and being a continuation of a deflected portion, 10, of the upper section which constitutes a shoulder against which said bead rests.

The inner container, 11, may be made of glass or some other vitreous substance, which, despite its fragility is employed because it is a poor conductor of heat and in order that the interior of the container may be properly cleaned and insanitary conditions avoided. The container is provided with a neck, 12, the upper edge, 13, of which terminates under the inturned flange, 6, of the threaded neck, 5, to which it is bonded by a substantially infusible substance 14, of low heat conductivity. The bond may be in part disposed between the necks 5 and 12, of the jacket and the container which are separated to leave a space, 15, whereby their only physical connection is through the bond, 14, which on account of its low heat conductivity and its consequent disability as a heat conductor is incapable of transferring much heat from the container to the jacket if the contents be hot, or from the jacket to the container if the contents be cold. The container should be silvered to intercept radiant heat, and, for convenience of manufacture, is made of one piece of glass. The bottom of the container is devoid of angles and is approximately of semi-

spherical form, the object being to avoid fractures which are caused by unequal expansion of parts of vessels of irregular shapes.

The bottom, 3, of the jacket is provided with a support, 16, of limited area to enable the receptable to rest upon irregular surfaces without tilting and for reducing conduction of heat to objects on which the receptacle may be placed.

The stopper, 17, for the container, 11, is hollow and preferably made of glass, and it is provided with a rib, 18, from which it may be sustained. The air may be exhausted from the space within the stopper, or rarefied by expansion before the stopper is closed. A gasket, 19, which may be of rubber, is interposed between the rib, 18, and the edge, 6, of the container to make a tight joint, to cushion the surface thereof and to prevent any considerable heat from being conducted to the stopper, 17. The cylindrical outer wall, 20, of the stopper and the inner cylindrical wall, 21, of the neck, 12, are separated by an annular space, 22, to limit heat conduction and are ground to remove any protuberances or irregularities which might, if present, interrupt the continuity of said annular space, 22, and establish undesirable and excessive paths of heat conductivity. The stopper, 17, is normally out of contact with the contents of the container, 11, and hence all of the heat which is conducted to the stopper must be transmitted through the glass neck, 12, of the container which is of relatively small cross-section and a poor conductor of heat. If the stopper were not spaced from said neck, the insulation would be appreciably impaired and the period of heat retention would be somewhat shortened.

The stopper has a relatively small mouth, 23, which is provided with an external bead, 24, and this mouth is closed by a convex cap, 25, that is secured in position by a her-

metical adherent seal, 26, extending over the edge of said mouth, and, if desired, over said external bead.

A cover, 27, having a threaded lower edge, 28, which engages the threads of the neck, 5, of the jacket, 1, is provided with a centrally disposed cavity, 29, in its top wall which cavity coincides with the convex cap, 25, of the stopper, 17, to thereby center said stopper and compel a concentric disposition of said stopper and the neck, 12, of the container, as well as to maintain the separation of their adjacent surfaces.

The receptacle is provided with a bale, 30, to facilitate its handling.

The space between the jacket, and the container 11, is filled with a comminuted substance 31, of poor heat conducting properties, such as cork, and this substance is packed with sufficient density to prevent violent pendulous movements of the container occasioned by shocks administered from without the receptacle, while permitting the expansion and contraction and the slight bodily movements of the container which are produced by changes of temperature. The walls of the jacket, 1, and the container, 11, are spaced apart a sufficient distance to prevent indented portions of the jacket from exerting pressure upon or transmitting shocks to the frangible wall of the container, and to admit of the dispersion of the force of external blows into the relatively thick protective packing, 31, in order that said frangible wall may not be broken. The distance between the walls of a vessel having substantially a capacity of one gallon should be one inch or more, and the packing should be such as to readily disperse shocks.

By employing a two-part jacket the manufacture of the receptacle is greatly facilitated. The various parts are separately produced ready for assembling, whereupon the

container is inserted into the top portion of the jacket from below and bonded thereto. The container is then silvered by a well-known process and the coating of silver covered by a film of protective paint. The packing is next introduced, and this part of the assembling operation is accomplished by telescoping a cylinder, 32, of paper or other poor conductor of heat into the section, 4, of the jacket, 1, said cylinder being substantially coextensive with said jacket. The non-conducting filling, 31, is then placed within said cylinder and packed in the desired degree, whereupon the section, 2, of the jacket is slid over said cylinder and secured in position by spinning the lip, 9, over the bead, 8.

The substance of which the bond is composed is, preferably, a prepared shellac which is fully described in United States Letters Patent #1,309,967, granted to Simonson and Blair on July 15, 1919. This substance is of especial utility as a bond inasmuch as it may be fused in situ at a temperature which is lower than the temperature at which glass fuses and, by sufficient heat treatment at normal pressures, becomes, exceedingly tenacious and permanently adherent to the neck of the jacket and the container. The substance is ground before it is applied, and when heated it fuses and becomes sticky and immediately attaches itself to the adjacent parts. Prolonged heating hardens it, renders it substantially insoluble in alcohol, and materially raises or eliminates its melting point, so that its durability as a bond is ensured. The tenacity of this bond is such that it is capable of supporting the container in its pendent position with the jacket without the aid of adjunctive supporting devices. The filling between the jacket and the container is primarily employed as a shock-absorber and an insulator, and for the purpose of preventing the container from responding to external shocks

which, if of sufficient intensity, would cause the container to oscillate to such extent, relatively to the jacket, as to fracture its neck. Experiments have shown that the bond will remain intact and adherent to the parts even when contiguous portions of the glass of the container are broken by a shock.

It is important that the inner container be composed of a substance which is a poor conductor of heat, so that heat will not be readily transmitted upward through the body of the container to the outer jacket from which it is suspended. Although the bonding material constituting the seal is itself a poor conductor of heat, it is desirable to supplement its non-heat transmitting properties as much as possible.

Having thus described my invention, what I claim is:

1. A heat-insulated vessel of the non-vacuum type having an outer jacket of non-frangible material, an inner container of frangible material, said inner container being bonded to and pendently supported from said jacket, and heat-insulting and shock-absorbing means surrounding said container for limiting oscillations of said container while permitting expansion thereof by changes of temperature.

2. A heat-insulated vessel having a transversely divided outer jacket of non-frangible material, an inner container of frangible material bonded to the upper portion of said jacket and pendently supported thereby, a lining disposed within and substantially coextensive with said jacket, and a comminuted body of heat insulating and shock-absorbing material disposed between said container and said lining for limiting oscillations of said container while permitting expansion thereof by changes of temperature.

3. A heat-insulated vessel of the non-vacuum type, having an outer non-frangible jacket provided with a neck and consisting of a plurality of parts united by a circumferential spun seam, a strong inner frangible container having a neck which is sealed to the neck of said jacket, and a packing of shock-dispersing and heat-insulating material enveloping said container and of sufficient thickness to prevent indentations or distortions of said jacket from exerting a breaking pressure on said container, whereby oscillation of said container is limited and expansion thereof by changes of temperature permitted.

4. A heat-insulated vessel of the non-vacuum type having a non-frangible outer jacket, an inner frangible container, and a bond uniting said jacket and said container at their upper ends and sustaining said container in a pendent position within said jacket, said jacket and said container being sufficiently spaced to prevent indented or distorted portions of said jacket from touching said container.

5. A heat-insulated vessel of the non-vacuum type having a two-part outer jacket, an inner container of non-corrosive material bonded directly to and pendently sustained by said outer jacket, and a comminuted packing, disposed around said container to limit pendulous movements of said container while permitting expansion and contraction thereof by changes of temperature.

6. A heat-insulated vessel having a non-frangible outer jacket provided with a top portion and a bottom portion each formed with a cylindrical wall and united by a circumferential joint, and an intergral non-corrosive inner container united to said top portion by an adherent bond, and supported by said bond in a pendent position.

7. A heat-insulated vessel consisting of a divided outer jacket, a single-wall container, a bond directly uniting the

tops of said jacket and said container and sealing the space within said jacket, and cushioning means, said cushioning means substantially filling the space between said jacket and said container and having low heat conductivity for insulating said container and for limiting pendulous movements thereof.

8. A heat-insulated vessel having an outer jacket and an inner container provided with a neck, a body of heat-insulating material surrounding said container and a closure for and engaging the neck of said container and separated from the inner wall of said neck by a heat-insulating air space.

9. A heat-insulated vessel having an outer jacket and an inner single-wall container provided with a neck, a body of heat-insulating material surrounding said container, a closure for the neck of said container separated from the inner wall of said neck, by a heat-insulating air space and a heat-insulating gasket disposed between said neck and said closure.

10. A heat-insulated receptacle of the non-vacuum type, including a multi-part outer jacket having an inturned portion at its upper end, a single-walled strong inner frangible container having a neck surrounded and laterally sustained by said jacket, and resilient heat-insulating material disposed between said jacket and said container and extending from the inner wall of said jacket to the outer wall of said container for limiting the oscillation of said container while permitting expansion thereof by changes of temperature.

11. A heat-insulated vessel of the non-vacuum type, having a non-frangible multi-part outer jacket, an inner strong single-walled container of low heat conductivity pendently sustained in and separated at all points from

said outer jacket by heat-insulating material which limits oscillation of said container while permitting expansion thereof by changes of temperature.

12. A heat-insulated vessel of the non-vacuum type, having a non-frangible outer jacket, a strong inner single-walled frangible container of low heat conductivity pendently sustained in said jacket and separated at all points below the point of suspension in said outer jacket by heat insulating material for limiting oscillation of said container while permitting expansion thereof by changes of temperature.

13. A heat-insulated receptacle of the non-vacuum type, including a non-frangible outer jacket, a strong inner vitreous container supported in the upper portion of said outer jacket, and a comminuted heat-insulating material disposed between said jacket and said container for limiting oscillation of said container while permitting expansion thereof by changes of temperature, said container having sufficient opacity to substantially conceal said insulating material.

14. A heat-insulated receptacle of the non-vacuum type, having a non-frangible outer jacket, a strong inner single-walled container of frangible material, said inner container being pendently sustained in said jacket, and heat-insulating and shock-aborbing means surrounding said container for limiting its oscillation while permitting expansion thereof by changes of temperature.

15. A heat-insulated receptacle including an inner vitreous container, a sectional outer jacket, heat insulating material disposed between said container and jacket, and a retainer for holding said insulating material in place pending the placing in position of a section of the outer jacket.

16. A heat-insulated receptacle of the non-vacuum type, including an outer non-frangible jacket, a strong inner

vitreous container supported in the upper portion of said jacket, and heat insulating material disposed between said container and said jacket for limiting oscillation of said container while permitting expansion thereof by changes of temperature, said container having an outside coating of silver to render it opaque and reflective of heat rays.

17. A heat-insulated receptacle of the non-vacuum type, including a multi-section outer jacket, a strong vitreous single-walled inner container sustained in the upper portion of said outer jacket, resilient heat-insulating material disposed between said jacket and said container for limiting oscillation of said container while permitting expansion thereof by changes of temperature, one section holding a cover, and a seal to prevent moisture from reaching said insulating material.

18. A heat-insulated receptacle of the non-vacuum type, including a multi-section outer jacket, a strong vitreous single-walled inner container sustained in the upper portion of said outer jacket, resilient heat-insulating material disposed between said jacket and said container for limiting oscillation of said container while permitting expansion thereof by changes of temperature, a screw-threaded section for holding a cover, and a seal for preventing moisture from reaching said insulating material.

19. A heat-insulated receptacle including a multi-section outer metallic jacket, a vitreous inner container, heat-insulating material disposed between said jacket and said container, and a vitreous stopper carrying a resilient gasket, said stopper being retained in position by a cup engaged with a section of said outer jacket.

20. A heat-insulated receptacle including a multi-section outer metallic jacket, an opaque vitreous inner con-

tainer, heat-insulating material disposed between said jacket and said container, and a vitreous stopper having a recess carrying a resilient gasket, said stopper being retained in position by a cup engaged with a section of said outer jacket.

21. A heat-insulated receptacle of the non-vacuum type, including a multi-section outer jacket, a vitreous open-mouth single-walled inner container sustained in the upper portion of said outer jacket, resilient heat-insulating material disposed between said jacket and said container for limiting oscillation of said container while permitting expansion thereof by changes of temperature, and an insulated stopper for closing the mouth of said container, a section of said outer jacket having means for holding and vertically adjusting a cover.

22. A heat-insulated receptacle of the non-vacuum type, including a non-frangible outer jacket, a strong inner frangible container having a body portion and a neck, said neck being held laterally by an upper part of said receptacle, and additional means for laterally holding said body portion and for restricting convective air currents around said container, said means consisting of comminuted heat-insulating material surrounding said body portion to thereby substantially prevent lateral movements of said body portion.

23. A heat-insulated receptacle of the non-vacuum type, including a non-frangible outer jacket, an inner frangible container having a neck, the neck of said container being laterally positioned by an adjacent part of said jacket, and the body of said container being laterally sustained in the body of said receptacle by a mass of comminuted heat-insulating material disposed in the space between said bodies to restrict convective currents of air

therein and to limit the amplitude of pendulous movement of the body of said container.

24. A heat-insulated receptacle of the non-vacuum type, including a non-frangible outer jacket, a strong inner frangible container positioned at its upper end by an adjacent part of said jacket, and heat insulating material disposed within said jacket, filling the space between said jacket and said container and of sufficient density to substantially prevent said container from whipping, vibrating or oscillating at its lower end.

In testimony whereof he affixes his signature in the presence of two witnesses.

LEWIS VAN DEVENTER BLAIR.

Witnesses:

CARL J. POWERS,

B. E. FACTOR.

APPENDIX B

No. 3812

UNITED STATES CIRCUIT COURT OF APPEALS

FOR THE SEVENTH CIRCUIT

OCTOBER TERM, 1926, APRIL SESSION, 1927.

MACOMB MANUFACTURING COMPANY, *Appellant*,
vs.
THE MANTLE LAMP COMPANY OF AMERICA, *Appellee.*

Appeal from the District Court of the United States for the Southern District of Illinois, Northern Division.

May 28, 1927.

BEFORE ALSCHULER, EVANS and ANDERSON, *Circuit Judges.*

ANDERSON, Circuit Judge: This is an appeal from a decree holding patent No. 1,435,199, issued to the appellee as assignee of Lewis Van Deventer Blair, valid, and claims 1, 4, 5, 6, 7, 10, 11, 12, 13, 14, 17, 18, 21, 22, 23 and 24 thereof infringed.

Appellee, in its brief, after differentiating these 16 claims, says they "are not redundant, but define one or

another of the aspects of the invention." 1 and 17 are put forth as "examples" of the claims. These are:

> 1. A heat-insulated vessel of the non-vacuum type, having an outer jacket of non-frangible material, an inner container of frangible material, said inner container being bonded to and pendently supported from said jacket, and heat-insulating and shock-absorbing means surrounding said container for limiting oscillations of said container while permitting expansion thereof by changes of temperature.
>
> 17. A heat-insulated receptacle of the non-vacuum type, including a multi-section outer jacket, a strong vitreous single-walled inner container sustained in the upper portion of said outer jacket, resilient heat-insulating material disposed between said jacket and said container for limiting oscillation of said container while permitting expansion thereof by changes of temperature, one section holding a cover, and a seal to prevent moisture from reaching said insulating material.

The patent says: "The invention relates to receptacles of the heat-insulated, non-vacuum type." Such receptacles are found in prior patents. We will therefore consider this case without reference to the heat-insulated, vacuum receptacles so common when the patent was issued.

After stating, in general terms, the state of the art at the time of Blair's application, appellee says: "The problem, therefore, which confronted Blair, * * * was the production of a receptacle, without the intervention of a vacuum and of relatively large size, for the maintenance for many hours of a desired high or low temperature of food or liquid contents, and of a better shock-resisting character."

This problem, in the language of appellee, was solved by the following means:

> "His receptacle includes a metallic protective jacket and a single wall container."
>
> "This container is fixedly and firmly connected at its upper end with the top of the outer metal jacket by means of a bond."
>
> "The space between the jacket and the body of the inner container, as distinguished from the neck portion, contains comminuted material, which material impedes the transfer of heat by induction between the inner container and the jacket and limits the pendulous vibrations of the container within the jacket."
>
> "The comminuted material, if allowed to become moist, would be a good conductor of heat. But moisture is kept therefrom by an inturned flange extending from the neck of the jacket, which flange while acting as a seal also protects the frangible neck of the container and positions the container in the jacket while the parts are being assembled. The means constituting a bond and also acting as a seal, which hold the neck of the container in place within the neck of the jacket, also operates to prevent moisture from reaching the comminuted material, in case moisture should pass between the flange and the neck of the container."

And appellee continues:

> "It will thus be seen that all of the elements above enumerated are tied together in a true combination producing a single and useful result and that if any one element, the jacket, the container, the spacing, or the packing were omitted, or some sealing means were not used to keep moisture away from the packing, and

to pendently support the container so that only one path of heat conductivity is afforded, the device would not be such as efficiently to perform its intended functions."

The prior art discloses heat-insulated and shock-resisting receptacles of the non-vacuum type. Prior patents show each of the elements enumerated by appellee. We need only to call attention to three, which appear in the record: No. 211,092, issued to Heath, January 7, 1879; No. 358,732, issued to Clisbee, March 1, 1887; and No. 438,149, issued to Fox, October 14, 1890.

Heath calls his invention "an encased bottle," and says: "the object sought for being the prevention of breakages during transportation." This is the shock-resisting object of the patent in suit. Heath discloses an outer jacket, a single wall container, spacing between the jacket and the container, and the packing therein. The container had its neck extended up through the jacket, and the jacket and the container connect or contact with each other only at the extreme end of the neck. At no other point is the container in contact with the jacket. So far, Heath describes the construction of the patent in suit.

Clisbee calls his invention an "insulated can," and says:

"The object of this invention is to furnish an improved insulated can for coffee and other beverages * * * so that the liquid may retain its heat * * *." Clisbee has the outer jacket, the inner single wall container, the spacing between the jacket and the container, the packing in the spacing, and the neck of the container connecting with the jacket at the upper end of the neck and nowhere else. Blair positions these elements as they are positioned in Heath's and Clisbee's patents.

In these two patents we have disclosed every element claimed to be in the patent in suit, except the bond or bonding means which appellee says holds the container firmly and fixedly, pendently positioned in the jacket. This use of a bonding means to thus hold the container firmly and fixedly in its position, and also to prevent moisture from getting into the packing, is disclosed in the Fox patent.

This Fox patent is for a carboy, and shows an outer jacket, called a box or frame, a single wall container inside the jacket with a neck extending up through the jacket, and packing between the container and the jacket, and the patentee says: "Around this neck of the carboy I tightly pack plaster-of-paris or other suitable material, as shown at B (in the drawing), for the purpose of firmly holding the carboy in place, * * * and also for the purpose of excluding moisture or water." And, again: "B is a packing of plaster-of-paris or other suitable material, intended to hold the carboy firmly in place within the box or frame enclosing it and to exclude water or moisture from the packing C."

Thus we have all the elements in appellee's claims disclosed in these three prior patents, each operating in its old way and effecting its old result, and the only question to be decided is: Did it involve invention for Blair to take the bond from Fox and the other elements from Heath or Clisbee, or both of them, and assemble them in one heat-insulated, non-vacuum receptacle?

With Heath, Clisbee and Fox in the field—Heath and Clisbee both showing (except the bond between the container and the jacket) the construction adopted by Blair, Heath's object being shock resistance and Clisbee's heat insulation, both using the same means and construction—did it involve invention to take Fox's bond and add it to

Heath or Clisbee? We think this involved mechanical skill, and not inventive genius. In the language of the Supreme Court in *Hollister* v. *Benedict Mfg. Co.*, 113 U. S. 59, on page 73, 5 S. Ct. 717, 724, (28 L. Ed. 901): "It is but the display of the expected skill of the calling, and involves only the exercise of the ordinary faculties of reasoning upon the material supplied by a special knowledge, and the facility of manipulation which results from its habitual and intelligent practice." A person skilled in the art pertaining to heat-insulated receptacles of the non-vacuum type, knowing what had been done before, and seeing these various elements performing their functions in the patents above mentioned, would not require a flash of genius to combine with the structures shown by Heath or Clisbee a bond to hold the container in position and at the same time prevent moisture from getting into the insulating packing.

We are not now concerned with the particular bond set forth in appellee's patent, which says: "The substance of which the bond is composed is, preferably, a prepared shellac which is fully described in United States Letters Patent No. 1,309,967, granted to Simonson & Blair on July 15, 1919." If appellant used the bond described in that patent, for such use the suit should be for its infringement; but it is not claimed that appellant used this particular bond. It used plaster-of-paris, or a mixture of plaster-of-paris and cement or white lead, none of which, singly or combined, is the bond of appellee.

The result obtained by Blair may be a better structure than was ever before produced, and yet, for the lack of novelty of device, or new result produced, it may have no patentable quality. He has assembled—combined, in the ordinary sense—old and well-known elements, but he has not made an invention.

Reversed, with direction to dismiss the bill of complaint for want of equity.

A true Copy; Teste.

EDWARD M. HOLLOWAY,
Clerk of the United States Circuit Court of Appeals for the Seventh Circuit.

(SEAL)
(United States Circuit Court)
(of Appeals, Seventh Circuit.)

Rehearing denied Dec. 5, 1927.

APPENDIX C

No. 3889

UNITED STATES CIRCUIT COURT OF APPEALS

FOR THE SEVENTH CIRCUIT

OCTOBER TERM, 1926, APRIL SESSION, 1927.

MONARCH COMPANY, INC. AND THERM-A-JUG COMPANY, INC.
Appellants,

vs.

THE MANTLE LAMP COMPANY OF AMERICA,
Appellee.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

May 28, 1927.

Before ALSCHULER, EVAN A. EVANS, and ANDERSON,
Circuit Judges.

ANDERSON, Circuit Judge: Appellants filed suit against appellee for unfair competition in the sale of heat-insulated receptacles designed to keep hot liquids hot and cold liquids cold. Appellee filed a counterclaim charging that plaintiffs, in making their receptacles, infringed patent No.

1,435,199, owned by appellee and considered in the case of *Macomb Manufacturing Co.* v. *Mantle Lamp Co.*, (No. 3812) 22 F. (2d) 93, decided this day.

The court dismissed the bill of complaint for want of equity, upheld the counterclaim, and adjudged the patent valid and infringed as to the same claims relied on in No. 3812. The only question presented upon the issue of unfair competition is whether the decree was right upon the evidence. We have examined the evidence, and are satisfied that it does not warrant a decree for appellants upon this issue. That part of the decree dismissing the bill of complaint is affirmed.

But we cannot approve the decree upon the patent branch of the case. For the reasons stated in our opinion in the *Macomb* Case, we hold the patent invalid. This part of the decree is reversed, with direction to dismiss the counterclaim. Costs shall be divided equally between the parties.

APPENDIX D

Filed Nov. 3, 1931
John W. Menzies,
Clerk.

No. 2506

UNITED STATES CIRCUIT COURT OF APPEALS

SIXTH CIRCUIT

THE MANTLE LAMP COMPANY OF AMERICA,
Appellant,
vs.
GEO. H. BOWMAN COMPANY,
Appellee.

Appeal from the District Court of the United States for the Northern District of Ohio.

Decided November 3, 1931.

Before DENISON AND MOORMAN, *Circuit Judges, and* SIMONS, *District Judge.*

DENISON, Circuit Judge: This is the usual patent infringement suit, based upon the Blair patent, No. 1,435,199, of November 14, 1922, for a "heat insulated receptacle." It discloses the type now common on the market, which

comprises a large mouthed receptacle, holding a gallon or more, insulated within an outer casing which is in the general form of a pail or a large bottle, and which efficiently keeps a substantial amount of food or drink hot or cold for several hours. The patent was sustained in the *Monarch* and the *Macomb* cases, in the Northern District of Illinois (unreported), but these decrees were reversed by the Seventh C. C. A., (22 Fed. (2d) 93, 95), and the patent was held to be lacking in invention.

In the present case, the defendant filed an answer relying upon the former decision and setting up a long list of earlier patents. It did not take proofs and did not appear at the final hearing in the court below. The plaintiff voluntarily put in evidence all the patents set up in the answer. The District Judge felt obliged to follow the earlier decision, and dismissed the bill. Upon this appeal the defendant did not appear; and we accept the assurance of plaintiff's counsel that they know of no reason for defendant's default except lack of sufficient pecuniary interest. At our suggestion, we have been furnished with copies of the records and of the briefs in the former cases, and have thus been quite fully informed as to the proofs and the contentions therein.

The modern art of efficient insulated receptacles for domestic use seems to have been begun about 1907, with the now very familiar thermos bottle, and with similar structures known as "icy-hot", or by other names. These comprised a double wall of glass with an intervening vacuum; from necessities of manufacture they were very delicate and fragile; and they had usually no greater capacity than one quart; though a two-quart size was made to some extent. Beginning about 1907, this vacuum type for keeping liquids hot or cold, became exceedingly popular. The invention now involved was put upon the market

about 1918, under the trade name "Aladdin." It comprised a much larger receptacle, holding from one up to three or four gallons, and, by reason of its size and permissible large neck, was adapted to keep hot or cold not only liquids but solid or semi-solid food. It was well received and had large and increasing sales. Within a short time, it and similar articles made by others, and which are said to be infringements, had established their position as practically a new article of manufacture, and plaintiff was far and away the leader in the sales. Up until the proofs were taken it had sold over one million of them.

What Blair did, in substance, was to depart from the vacuum type; to rely for his heat insulation upon a relatively non-conducting packing between his outer and inner walls; to use an outer casing made of metal, which would be strong enough to receive ordinary shocks, and an inner container made of glass or some vitreous material that would allow the minimum of heat to escape therefrom; and to unite the outer and inner casings at their upper or neck ends, so that the inner would be pendently supported by the outer and so that the uniting means or bond should also serve as an insulator against heat or cold and as a seal to exclude air or moisture from the packing material. He was thereby enabled to, and was the first who did, put on the market a strong and satisfactorily efficient portable insulated jar or can, of relatively large size. There was, of course, nothing new in having merely the outer and inner vessels, with a packing between; but both the face of the patent and a review of the prior art and the oral testimony, indicate that Blair's useful novelty, which is incorporated in several of the claims, and which we take to be the dominant characteristic of his invention, consisted in hanging the inner container to the outer shell at the upper extremity of each by a bond which was suffi-

cient for this supporting function and which also served the essential insulating and sealing purposes. He was thus enabled to avoid relying upon the packing material for supporting the inner container from below—a function which it could only imperfectly perform,—and to avoid any extensive contact between the inner receptacle and the outer casing, whereby there would be any substantial channel for the escape of heat. Obviously, the use of a bonding material between the two instead of having any mechanical direct union, gave opportunity for interposing a comparatively non-conducting material. So far as the record indicates, there is no material used by the plaintiff or by infringers, which is suitable for this bond, which is not also, in considerable degree, heat insulating.

Claim 1 is given in the note,[1] and is sufficient to indicate the limits of the controversy. For the outer and inner containers, the parties have not used any materials other than metal for the outer and a vitreous or glasslike material for the inner. There is nothing to show that the more generic terms, non-frangible and frangible, have practically any wider application which might extend the field of prior use. The claim may, therefore, as well be read as if it called for containers that were respectively metallic and glassy.

The record leaves no doubt that Blair's combination was new, and its utility is demonstrated by the large sales and

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[1]A heat-insulated vessel of the non-vacuum type, having an outer jacket of non-frangible material, an inner container of frangible material, said inner container being bonded to and pendently supported from said jacket, and heat-insulating and shock-absorbing means surrounding said container for limiting oscillations of said container while permitting expansion thereof by changes of temperature.

the adoption by infringers. The argument against validity is that all the elements were old and there was no invention in putting them together. The earlier existence of the elements must be conceded; outer metallic casings used with an inner glass receptacle and with interposed insulating packing were old; metal and glass had been bonded together for some purposes and to some extent by material which would adhere to each; and an inner receptacle of bottle shape had been hung by its neck from the indrawn neck of an outer casing through mechanical direct contact. All these constructions had defects which apparently had prevented them,—something had,—from going into general use. The packing interposed between the outer and inner parts was certain to become, with use, somewhat denser and to leave the inner imperfectly supported and subject to jar and breakage. If the inner receptacle had its neck extended out so that it would rest upon the outer casing, and might, *e. g.*, be soldered thereto, a path was given for the escape of heat. By adopting the plan of pendent support, Blair insured against failure of the interposed packing to support sufficiently, and by effecting this support by a bond between the two, rather than by a mechanical union, and by using for the bond this described material, or any other which has been found effective for that purpose, he at the same time gave support, prevented the escape of heat and sealed out the air and moisture from the packing. Further, this method of bond support was mechanically more efficient and satisfactory than the other methods which had been tried.

The substantial character of Blair's step and its non-obviousness, are demonstrated by the testimony. The manager of a leading manufacturer of bottles of the thermos or vacuum type, testifies that when they realized the demand for larger receptacles, they tried to enlarge

their thermos bottle, the "icy-hot," using its method of manufacture, and they found it impossible. The mechanical difficulties of handling hot glass in the manufacturing process, so as to produce a large and heavy receptacle, were insuperable. Thereupon, in the endeavor to make an article to compete with the Aladdin, then on the market, without adopting the pendent-bond-support, they tried the best plan they knew. They inserted between the two bottoms supporting springs, which would hold the upper one against vibration and compensate for any settling in the packing; but when they produced this article for the market, they found the best they could do was to maintain the temperature three or four hours, as against six or eight for the Aladdin. The manager says that for his own use he discarded his own and bought an Aladdin. The attempt to market this article was abandoned.

The manager at the time, of the McComb Company, one of Blair's chief early competitors and defendant in one of the Illinois cases, testifies in this record. The McComb Company began to make this non-vacuum type in 1921 (the Blair patent application was filed in 1919) and sold about 1500 of its devices, which had an earthenware container supported at the neck by the indrawn neck of the metallic casing. There was no bond or seal,—at least, not in any effective way. This form did not satisfy the market, after one season's trial, it was abandoned and Blair's patent-bond-support adopted.

The record in the *Monarch* case contains, in our view, most persuasive evidence that Blair's advance step was not one obvious to those skilled in this art. The Monarch Company was engaged for two or three years in the effort to make a satisfactory article to meet the need for a larger and stronger "thermos bottle." Its mechanics,—certainly skilled,—tried several different forms, marketed

some, abandoned them, and eventually came to and adopted Blair's pendent-bond-support form, a year or more after the Aladdin was on the market. A summary of this evidence is in the note.[2]

We thus find that in accomplishing this combination of old elements to make a new market article, there had been

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[2]In 1918 the Monarch Company began its attempt to develop the non-vacuum type so as to get a relatively large container. It was without knowledge of Blair's idea. It used an ordinary Mason jar, packed in a casing with interposed insulation and with a metal tube for filling and emptying, extended from the jar cover up through the open top of the outer container and soldered thereto. There was thus (perhaps) the pendent support, but no combination of metal and glass, by such a bond or support by that bond, as Blair provided, and there was an obvious metallic channel for heat escape. About the same time the Monarch people made a second form, using an earthenware container with a neck and a metallic outer jacket conically drawn in at its neck and closely surrounding the projecting earthenware neck, but there was no attempt at insulation at this point between the two, or support of one by the other, but for this support the interposed packing material was relied upon. As this could not maintain resilience, the structure was certain to be inefficient as well as heat conveying. They planned to manufacture this on a large scale, but very soon discarded it. About July, 1918, they tried a third form, upon which, in December, they filed an application for a patent (later abandoned). This was like the second form just described, except that spring supports were interposed between the two bottoms to hold the inner container up in position (like the trial form experimentally produced by the "icy-hot"). This could hardly be satisfactory; the springs could not hold the inner jar motionless, there was no bond or seal at the necks, moisture and air would enter the packing material and both the direct contact of the two necks and the lower springs would make troublesome heat conveyers. In March, 1919, they

not only the delay of thirty or more years since the old patents now said sufficiently to teach the combination (though during most of this period there was no foreseen public demand for a thing of this kind), but there had been, after the demand was known, two or three years of effort

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filed another patent application on a fourth and slightly different form. It lacked springs, but it had the other recited defects. They had not felt justified in trying to market any of these four forms. A fifth form, adopted October, 1919, was put upon the market. This was like numbers 3 and 4, except that they endeavored to avoid the heat escape at the contact point of the two necks by interposing a rubber gasket. There was no suggestion of bond or pendent support. There was a form of sealing by this gasket, but nothing to compel contact so as to make the seal effective. During 1919 and 1920, they marketed some 7,000 jugs of this type, of which nearly half were returned as unsatisfactory. In the fall of 1920, they substituted for number 6, form number 7. This was an elaboration of the rubber gasket idea. In addition, the inner jar was pendently supported at the neck by a screw thread engagement with the cap which was in contact with the outer container. Here again there was a heat losing contact between the inner and outer parts, and nothing resembling a supporting insulating bond between the two. As a sealing means, the rubber gasket was inefficient because it would be released whenever the cap was taken off. They manufactured and sold this form with some success for two years. Just at what time they had knowledge of the Blair construction does not appear, but in 1923, they abandoned number 7 and adopted the Blair idea of pendent-bond-support. They discarded their rubber gasket seal and separable two-part form of the outer casing; they abandoned direct contact between the two necks, enlarged the outer one so as to get an intermediate space, and filled this in with a composition which was both bond and seal and which caused the inner to be pendently supported by and from the outer.

by Blair's competitors to satisfy it by using their best skill in various combinations other than his, and we see that eventually one of them dropped out and the other two were compelled to use Blair's system of bond support for the pendent inner container. Seldom is there a record of failure by other things and success by the patented means, more helpful than this is, upon the issue of invention.

We do not overlook the problem presented by the form of the claim. The functions of the bonding material, as an insulator to interrupt the flow of heat and as a seal to exclude air and moisture from the packing, are not specified in the claim, although they are of considerable importance, (we do not say vital), in distinguishing from the prior art.

We think this patent is entitled to a fairly liberal construction in aid of its validity and ought not to be defeated by any unnecessary adherence to technical rules. We think also that the always implied "substantially as described" and the doctrine of interpretation by the specifications, justify regarding the "bond" of the claim as one which does effectively insulate the outer and inner members. The patent specifies, in line 61 of page 1, that the bonding substance shall be of low heat conductivity, and the succeeding lines emphasize that it is to be incapable of transferring much heat or cold from one to the other. Its "non-heat transmitting properties" are again emphasized in line 115 of page 2. To import this limitation into the claim is not to bring in an additional element. It is only to interpret with the aid of the specification one of the words of the claim, so that it may not be thought so broad as to be destructive.

How far the sealing quality should also be implied in the claim in aid of its validity, it does not seem necessary to decide. Nor need we decide just what would or would not be

the supporting bond contemplated by the claim. In defendant's form, the material of the bond is a sulphur composition. It is strongly adherent, both to glass and metal. It seems probable that it would, unaided, sufficiently support the pendent receptacle; but its operation is aided by providing grooves in the outer surface of the inner and the inner surface of the outer necks into which grooves the bonding composition enters, and which grooves therefore aid in preventing any slippage as between the two members. This construction renders it less vital that the bonding material should adhere, efficiently to smooth glass and smooth metal, as shown in the structure of the patent drawings; but the testimony of the experts that there is infringement is not disputed, we have no argument on the subject, and we think, for the purposes of this record, we should find that infringement exists.

The Seventh Circuit Court of Appeals relied upon three old patents as the most pertinent out of the many cited by defendant in that case, and expressed the view that in selecting elements from these three and combining them, as Blair did, there was no invention. Even if this were a case where the lack of invention could be spelled out in this way, the patents do not seem to us sufficient for that result. *Clisbee,* No. 358,732, March 1, 1887 relates to a double wall metallic can for keeping coffee hot. The inner can is pendently supported by an upturned flange on its neck resting against the indrawn collar of the outer can, and the parts are screw-clamped together. There is no suggestion of bond or seal. The loss of heat from the direct contact of the two metal parts is obvious. The other two patents relied upon (*Heath,* No. 211,092, January 7, 1879, and *Fox,* No. 438,149, October 14, 1890) do not relate at all to heat insulation. They consist essentially of packing boxes to prevent the enclosed bottle from being broken

in transportation. They do not have, in an effective sense, any bond or seal. Fox shows a wooden packing case, for transporting a glass carboy. He furnishes support apparently only from below by an interposed packing. It is true that between the neck of the carboy and the surrounding hole in the top of the wooden box, Fox puts in plaster-of-Paris and says that it is "to exclude water or moisture." There was thus the thought of a seal, but the proof is that plaster-of-Paris alone does not effectively exclude air or moisture, and that it would not adhere to the wood and glass so as to support the heavy carboy. It never was intended to give pendent support. Heath, likewise, who has only a bottle cased for shipping, and whose entire stated object was to prevent breakage, has no pendent support and no bond or seal.

The leading decisions on the subject of invention are too familiar for citation. Their application depends on the facts of each case. We are constrained to the other conclusion from that reached by the Seventh Circuit Court of Appeals. It may well be noted that the testimony of two competitors, showing their unsuccessful efforts to get Blair's result by other means, was not in these McComb and Monarch records, and this proof is so important that it alone goes far toward justifying a different result here.

We have considered only claim 1. There are other claims which are broader in some respects and do not incorporate the supporting bond. They thus present questions of validity which we have not discussed. Some other claims are narrower and suggest questions of infringement. We see no object, upon this record, in considering any of these claims.

The decree will be reversed and the case remanded, with instructions to enter the usual decree for plaintiff on claim 1, and without prejudice to any rights of the plaintiff under any other claim.

APPENDIX E

Sec. 4917 Rev. Stat.; 35 U. S. C. A. 65. Whenever, through inadvertence, accident, or mistake, and without any fraudulent or deceptive intention, a patentee has claimed more than that of which he was the original or first inventor or discoverer, his patent shall be valid for all that part which is truly and justly his own, provided the same is a material or substantial part of the thing patented; and any such patentee, his heirs or assigns, whether of the whole or any sectional interest therein, may, on payment of the fee required by law, make disclaimer of such parts of the thing patented as he shall not choose to claim or to hold by virtue of the patent or assignment, stating therein the extent of his interest in such patent. Such disclaimer shall be in writing, attested by one or more witnesses and recorded in the Patent Office; and it shall thereafter be considered as part of the original specification to the extent of the interest possessed by the claimant and by those claiming under him after the record thereof. But no such disclaimer shall affect any action pending at the time of its being filed, except so far as may relate to the question of unreasonable neglect or delay in filing it.

Sec. 4922 Rev. Stat.; 35 U. S. C. A. 71. Whenever, through inadvertence, accident, or mistake, and without any wilful default, or intent to defraud or mislead the public, a patentee has, in his specification, claimed to be the original and first inventor or discoverer of any material or substantial part of the thing patented, of which he was not the original and first inventor or discoverer,

every such patentee, his executors, administrators and assigns, whether of the whole or any sectional interest in the patent, may maintain a suit at law or in equity, for the infringement of any part thereof, which was *bona fide* his own, if it is a material and substantial part of the thing patented, and definitely distinguishable from the parts claimed without right, notwithstanding the specifications may embrace more than that of which the patentee was the first inventor or discoverer. But in every such case in which a judgment or decree shall be rendered for the plaintiff no costs shall be recovered unless the proper disclaimer has been entered at the Patent Office before the commencement of the suit. But no patentee shall be entitled to the benefits of this section if he has unreasonably neglected or delayed to enter a disclaimer.